

MAY 09 2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Huang et al.  
Serial No.: 10/720,833  
Filed: November 24, 2003  
For: Manufacture Of Carbon/Carbon Composites By Hot Pressing  
Examiner: Bradley T. King  
Attorney's Docket No. P2025/N8958  
Customer No. 23456

**RESPONSE TO RESTRICTION REQUIREMENT**

**VIA TELEFAX - 703.872.9306**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Restriction Requirement mailed March 10, 2005, please  
amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on  
page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

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**COMPLETE LISTING OF CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (original) A method of forming a composite material comprising:  
combining a reinforcement material which includes carbon-containing fibers with a carbonizable matrix material to form a mixture;  
heating the mixture to a sufficient temperature to melt at least a portion of the matrix material, the step of heating including:  
applying an electric current to the mixture to generate heat within the mixture; and  
while heating the mixture, applying a pressure of at least 35 kg/cm<sup>2</sup> to the mixture to form a compressed composite material  
  
increasing the density of the compressed composite by introducing a carbonizable material into voids in the compressed composite and then baking the compressed composite to achieve a density of at least about 1.30 g/cm<sup>3</sup>; and  
  
impregnating the compressed composite, having a density of at least about 1.30 g/cm<sup>3</sup>, with a treating component.

2. (original) The method of claim 1, further comprising:  
graphitizing the compressed composite having a density of at least about 1.30 g/cm<sup>3</sup> in an inert atmosphere to a final temperature of at least 2000°C prior to said impregnation.
3. (original) The method of claim 1 wherein said treating component comprises at least one of a metal, a thermosettable resin, and combinations thereof.
4. (original) The method of claim 3 wherein said metal comprises at least one of aluminum, copper, boron, and combinations thereof.
5. (original) The method according to claim 3 wherein said thermosettable resin comprises phenolic resins, furan derived resins, epoxy resins, polyimides, cyanate esters, and combinations thereof.
6. (original) The method according to claim 5 further comprising curing said thermosettable resin.

7. (original) The method according to claim 1 wherein said compressed composite, having a density of at least about 1.45 g/cm<sup>3</sup> comprises at least one friction additive.
8. (original) The method according to claim 1 wherein said impregnation comprises subjecting said compressed composite, having a density of at least about 1.45 g/cm<sup>3</sup> to vacuum.
9. (original) The method according to claim 1 wherein said treating component comprises a thermosettable resin.
10. (original) The method according to claim 1 further comprising heating treating said compressed composite, having a density of at least about 1.45 g/cm<sup>3</sup>, to a temperature greater than the highest use temperature of said composite material.
11. (withdrawn) A vehicle friction brake assembly comprising:

a friction element having at least a cast iron surface which rotates with a wheel of a vehicle; and

a braking element having a surface aligned to movably engage said cast iron surface of said friction element, wherein at least said surface of said braking element comprises a carbon/carbon composite impregnated with a treating component.

12. (withdrawn) The vehicle friction brake assembly according to claim 11 wherein said surface further comprises a friction additive.

13. (withdrawn) The vehicle friction brake assembly according to claim 12 wherein a concentration of said friction additive through a thickness of said surface comprises substantially uniform.

14. (withdrawn) The vehicle friction brake assembly according to claim 11 wherein said treating component comprises at least one of a metal, a thermosett material, and combinations thereof.

15. (withdrawn) The vehicle friction brake assembly according to claim 11 wherein said friction element comprises a brake drum or a brake rotor.

16. (withdrawn) The vehicle friction brake assembly according to claim 11 wherein said braking element comprises a brake pad.

17. (withdrawn) The vehicle friction brake assembly according to claim 11 wherein said treating component comprises a thermosett material.

18. (withdrawn) A method of making a vehicle friction brake assembly comprising:

rotatably attaching a friction element comprising a cast iron surface onto a vehicle; and

aligning a braking element to movably engage said friction element, said braking element comprising a surface comprised of a carbon/carbon composite and a treating component, said surface of said braking element aligned to engage said cast iron surface.

19. (withdrawn) The method according to claim 18, wherein said treating component comprises at least one of a thermosett material, a metal, a metal alloy, and combinations thereof.

20. (withdrawn) The method according to claim 18, wherein said composite further comprise a friction additive.

**REMARKS**

Claims 1-20 were pending in the above-captioned application, all of which are subject to a restriction requirement, restricting the claims between Group I, claims 1-10, drawn to a process for making a composite; and Group II, claims 11-20, drawn to a vehicle brake assembly and process for making the assembly.

Applicants hereby elect for prosecution the invention of the Group I claims, claims 1-10, with traverse. The Listing of claims provided hereinabove effects this election by indicating that non-elected claims 11-20 are withdrawn.

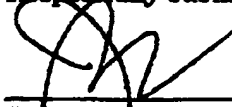
However, the Restriction Requirement does not establish that the inventions of the two Groups of claims are independent and distinct. As such, the restriction is traversed and withdrawal of the restriction and prosecution of all claims 1-20 is respectfully requested.

Applicants hereby petition the Commissioner for a one month extension of time to respond to the Restriction Requirement, extending their time to respond to May 10, 2005. The Commissioner is authorized to charge the fee of \$120 for a one month



extension of time, as well as any deficiency attendant to the filing of this response, to  
Deposit Account No. 21-0010.

Respectfully submitted,



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